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EXAMINER	
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/719,300	AOKI ET AL.	
	Examiner	Art Unit	
	KEVIN NGUYEN	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-20,22-25,27 and 28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-20,22-25,27 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

The applicants have cancelled claims 7, 21, 26, and 29-33, and amended claims 1, 15 and 23. Thus, claims 1-6, 8-20, 22-25, 27 and 28 are pending in this application.

In view of the applicant's argument, see the pre-appeal brief, filed on 5/5/2008, with respect to the rejection of claims 1-6, 8-20, 22-25, 27 and 28 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection has been made in view of **Chang** et al. (US 6,297,838), **Chai** et al. (US 6,357,461), and **Chan** (US 5,116,273).

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6, 8-20, 22-25, 27 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 15 and 23, the phrase "display layer components activate and deactivate" renders the claim(s) indefinite because the claim(s) include(s) elements are not consistent in the specification. The entire specification, paragraph 38, only discloses "display layer component activate or deactivate." Appropriate correction is required.

The other claims that depend on claims 1, 15 and 23 are also rejected using the same rationale.

For the purposes of rejections below, the claimed limitation is supposed to be "display layer component activate or deactivate."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 6,297,838, **Chang**).

1. As to **claim 1**, in the alternate embodiments, figures 31 and 32 of **Chang** teach a collapsible display between an expanded configuration with a greater visible area and a collapsed configuration with a smaller visible area, the collapsible display comprising:

at least three collapsible sections (380, 381, 382, Fig. 32), **including at least one display section having addressable elements to form an image and display layer components to active or deactivate an addressable display element,** (deformable display layer (10) is unfolded or folded corresponding open or close display image. The deformable display

layer (10) comprises capacitor sensor (22) is inside the controller layer 10. This control capacitor sensor (22) is driving to address the image or pixels, when the deformable display layer is open (corresponding to the display layer components to activate as claimed), or when the deformable display layer is closed (corresponding to the display layer components to deactivate as claimed), see col. 6, lines 5-43, and col. 1, lines 28-42) **coupled such that when the collapsible display is in the expanded configuration, each of the collapsible sections has a first end adjacent to another of the collapsible sections, the adjacent ends substantially aligned along an axis each display section further has a second end that is substantially opposite to the first end** (in the alternate embodiment, see col. 16, lines 13-34; figures 31 and 32) **and substantially oblique relative to the first end.** (In the alternate embodiment, col. 22, lines 20-31; figure 43; col. 23, lines 1-5, lines 47-52; and col. 25, lines 4-9, **Chang** discloses all the subject matter claimed with the exception of the particular shape and size of each display section. Absent a showing of criticality it would have been within the level of skill in the art and obvious to one having ordinary skill to engineering design the shape and size display sections as designed as was judicially recognized In re Russell, 169 USPQ 426 (CCPA 1971). In re Rose, 105 USPQ 237 (CCPA 1955). In re Raven, 156 USPQ 679 (CCPA 1958). It would have been obvious matter of design choice to modify the Chang's display area including obtuse angles by having the display area including oblique angles, since applicants have not disclosed that having "the first end is opposite to and oblique relative to the second end" at the specific display area solves any stated problem or is for particular purpose and it appears that the modified display area of **Chang** in view of **figure 43** would perform equally well with the display area having the oblique angle.)

As to claim 2, in the alternate embodiment, Chang further teaches the collapsible display of claim 1, further comprising a pivot to which each display sections is connected and about which each display section can rotate. (Col. 11, line 61 to col. 12, line 2; fig. 19.)

As to claim 3, in the alternate embodiment, Chang further teaches the collapsible display apparatus of claim 2, wherein at least one of the display sections is rotatable between: a first position about the pivot in which the display section overlaps significantly with another of the display sections such that the display sections occupy the smaller visible area, and a second position about the pivot where the display sections occupy the greater visible area. (Col. 11, line 61 to col. 12, line 2; fig. 19.)

As to claim 4, in the alternate embodiment, Chang further teaches the apparatus of claim 2, wherein at least one of the display sections is rotatable between a first position about the pivot in which the collapsible display occupies the smaller visible area, and a second position about the pivot where the collapsible display occupies the greater visible area. (Col. 11, line 61 to col. 12, line 2; fig. 19.)

As to claim 5, the display apparatus of claim 1, comprising a hinge element for enabling the display sections to rotate on an axis; two opposing panels; an additional hinge element for connecting adjacent sides of the two opposing panels and further for allowing the two opposing panels to rotate between an open position and a closed position, wherein the display sections are coupled to the two opposing panels such that the display sections are collapsed when the two opposing panels are in the closed position and the display sections are expanded when the two opposing panels are in the open position. (Chang teaches in col. 11, line 61 to col. 12, line 2; fig. 19; and col. 16, lines 13-34; figures 31 and 32.)

As to claims 6, the display apparatus of claim 1, comprising a section of a flexible display membrane secured to each of the display sections, and said display membrane comprising an electric paper. (Chang teaches col. 23, lines 47-61.)

As to claim 8, the display apparatus of claim 6, comprising an electronic device for providing display instructions to the display membrane. (Chang teaches in col. 9, lines 11-17.)

As to claim 9, the display apparatus of claim 8, said electronic device comprising at least one of: a portable computing device. (Chang teaches in col. 7, lines 19-26.)

As to claim 10, the collapsible display comprising a flexible display including a plurality of discrete elements being addressed by image. (Chang teaches the deformable display membrane 10 is driving to display the image by controlling of the capacitor sensor 22, the image is made up of a plurality of pixels, at least one pixel turns on or off which implies the discrete element, col. 6, lines 5-43).

As to claim 11, the display apparatus of claim 8, wherein the display section extends from one of: a side and a corner of the electronic device. (Chang teaches in col. 16, lines 13-34; figures 31 and 32)

As to claim 12, the apparatus of claim 8, wherein the collapsed display membrane is at least partially retractable into a body of the electronic device. (Chang teaches in fig. 31.)

As to claim 13, the collapsible display comprising a flexible display including a plurality of discrete elements being addressed by image. (Chang teaches the deformable display membrane 10 is driving to display the image by controlling of the capacitor sensor 22, the image is made up of a plurality of pixels, at least one pixel turns on or off which implies the discrete element, col. 6, lines 5-43).

As to claim 14, the display apparatus of claim 13, the display membrane further comprising a control layer for addressing the plurality of pixels. (Chang teaches the deformable display layer comprises capacitor sensor 22 is inside the controller layer 10. This display is addressed the image by the control sensor 22, the image is made up of a plurality of pixels, col. 6, lines 5-43).

Claims 15-19, 22, 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chang** in view of **Chan** (US 5,116,273).

2. As to **claim 15**, in the alternate embodiments, figures 31 and 32 of **Chang** teach a collapsible display deformable between an expanded configuration with a greater visible area and a collapsed configuration with a smaller visible area, the collapsible display comprising:

a flexible display membrane having addressable display elements and display layer components for activating or deactivating addressed display elements. (Chang teaches the deformable display layer comprises capacitor sensor 22 is inside the controller layer 10. This capacitor sensor (22) is driving to address the image or pixels, when the deformable display layer is open (corresponding to the display layer components to activate as claimed), or when the deformable display layer is closed (corresponding to the display layer components to deactivate as claimed), see col. 6, lines 5-43, and col. 1, lines 28-42)

at least one support member connected to the flexible display membrane, for supporting a portion of the flexible display membrane during an out-of-plane deformation; and (a flexible support frame, col. 22, lines 25-26; and see col. 16, lines 6-30; figs. 31 and 32.)

Chang fails to teach **a deformable rim forming an outer periphery of the flexible display membrane, wherein the at least one support member is secured to positions along**

the deformable rim and the deformable rim is biased to allow a section of the flexible display membrane to be twisted about at least one axis to form the collapsed configuration and untwisted about the at least one axis form the expanded configuration with a single action.

Chan discloses the flexible display including a hoop or ring 14 (corresponding to a deformable rim as claimed) that is twisted and folded with multiple actions, more than one single action. **Chan** further discloses the expanded configuration with a single action, and easily open the twisted flexible display with returning to a single action, col. 4 and col. 5; figs. 1, 3, and 4.)

Chang discloses all of the subject matter claimed except for the use of the flexible hoop or ring 14. However, the flexible support frame of Chang and the hoop 14 have been recognized in the art as an equivalent as evidenced by Chan. Chan teaches that the benefit of using the hoop 14 is collapsed for storage. Therefore, it would have been obvious to one of ordinary skill in the art to replace the support frame in Chang with the hoop 14 to achieve the benefit of using the hoop 14 is collapsed for storage when not in use taught by Chan. Where the claimed differences involve substitution of interchangeable equivalents and the reason for the selection of one equivalent for another was not to solve an existent problem such substitution has been judicially determined to have been obvious. See In re Ruff, 118 USPQ 343 (CCPA 1958).

As to claim 16, Chang further teaches a pivot, and each support member connected to the pivot about which the support member can rotate. (See col. 11, line 61 to col. 12, line 2; fig. 19; and col. 22, lines 24-26).

As to claim 17, Chang further teach the display apparatus of claim 15, said at least one support member is rotatable between a first position about the pivot, in which the portion of the

flexible display membrane overlaps significantly with a second portion of the flexible display membrane such that the flexible display membrane occupies a smaller visible area, and a second position about the pivot in which the first and second portions of the flexible display membrane occupy a greater visible area. (See col.11, line 61 to col. 12, line 2; fig. 19; and col. 22, lines 24-26.).

As to claim 18, Chang further teach the display apparatus of claim 15, comprising two opposing panels; and a hinge element for connecting adjacent sides of the two opposing panels and further for allowing the two opposing panels to rotate between an open position and a closed position, wherein the flexible display membrane is secured to the two opposing panels at a plurality of positions such that the at least one display section is collapsed when the two opposing panels are in the closed position and the at least one display section is expanded when the two opposing panels are in the open position. (See col.11, line 61 to col. 12, line 2; fig. 19).

As to claim 19, Chan further teaches the display apparatus of claim 15, wherein the at least one support member is secured to positions along an outer periphery. (See col. 5; figs. 1, 3 and 4.)

As to claim 22, Chang further teaches the display apparatus of claim 15, comprising an electronic device for providing display instructions to the display membrane. (See col. 15, lines 18-22).

3. As to **claim 23**, in the alternate embodiments, **Chang** teach a display apparatus, comprising:

a flexible display membrane having addressable display elements and display layer components for activating or deactivating addressed display elements, and (Chang teaches

the deformable display layer comprises capacitor sensor 22 is inside the controller layer 10. This capacitor sensor (22) is driving to address the image or pixels, when the deformable display layer is open (corresponding to the display layer components to activate as claimed), or when the deformable display layer is closed (corresponding to the display layer components to deactivate as claimed), see col. 6, lines 5-43, and col. 1, lines 28-42) **having at least one individually-deformable section, wherein when an individually-deformable section is collapsed, the collapsed section forms a first geometric configuration having a first area, and when the collapsed section is expanded, the expanded section forms a second geometric configuration having a second area greater than the first area: and** (See col. 16, lines 6-30; figs. 31 and 32.)

Chang fails to teach a deformable rim around the section of the display membrane, wherein the deformable rim is biased to allow the section to be twisted about at least one axis to form a collapsed position and untwisted about the at least one axis to form a visual display area, such that the collapsed position and visual display area are achievable with a single action.

Chan discloses the flexible display including a hoop or ring 14 (corresponding to a deformable rim as claimed) that is twisted and folded with multiple actions, more than one single action. **Chan** further discloses the expanded configuration with a single action, and easily open the twisted flexible display with returning to a single action, col. 4 and col. 5; figs. 1, 3, and 4.)

Chang discloses all of the subject matter claimed except for the use of the flexible hoop or ring 14. However, the flexible support frame of Chang (col. 22, lines 25-26) and the hoop 14 have been recognized in the art as an equivalent as evidenced by Chan. Chan teaches that the benefit of using the hoop 14 is collapsed for storage. Therefore, it would have been obvious to one of ordinary skill in the art to replace the flexible support frame in Chang with the hoop 14 to

achieve the benefit of using the hoop 14 is collapsed for storage when not in use taught by Chan. Where the claimed differences involve substitution of interchangeable equivalents and the reason for the selection of one equivalent for another was not to solve an existent problem such substitution has been judicially determined to have been obvious. See In re Ruff, 118 USPQ 343 (CCPA 1958).

As to claim 27, Chang further teaches the display apparatus of claim 23, comprising: two opposing panels; a hinge for connecting adjacent sides of the two opposing panels for allowing the two opposing panels to rotate between an open position and a closed position; and a section of the display membrane connected to at least one of the opposing panels, wherein the section is deformed when the two opposing panels are in the closed position and the section is unfolded when the two opposing panels are in the open position to form a display area. (In the alternate embodiments, Chang teaches in col. 11, line 61 to col. 12, line 2; fig. 19; and col. 16, lines 6-30; figs. 31 and 32.)

Claims 20, 24, 25 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chang** in view of **Chai** et al. (US 6,357,461, **Chai**).

As to claim 20, **Chang** teach all of the limitation of claim 15, except for a hub, wherein the at least one support member is connected to the hub at a first end and secured to positions along an outer periphery of the flexible display membrane at a second end such that each support member is rotatable between a first position about the hub where each support member is substantially parallel to each other and the flexible display membrane is collapsed to a smaller visible area and a second position about the hub where the flexible display membrane forms at least a portion of a visible area having a greater visible area. **Chai** teaches a connector 10

(corresponding to a hub as claimed) wherein the at least one support member (4) is connected to the connector 10 at a first end and secured to positions along an outer periphery of a collapsible shade (7) at a second end such that each support member is rotatable between a first position about the hub (10) where each support member (4) is substantially parallel to each other and the flexible display membrane is collapsed (see fig. 3) to a smaller visible area and a second position about the hub where the collapsible shade (7) forms at least a portion of a visible area having a greater visible area (see fig. 1). **Chang** discloses all of the subject matter claimed except for the use of the connector 10 and the support 4. However, the flexible support frame of Chang (col. 22, lines 25-26) and the connector 10 and the support 4 have been recognized in the art as equivalent as evidenced by **Chai**. **Chai** teaches that the benefit of using the connector 10 and the support 4 are collapsed for storage. Therefore, it would have been obvious to one of ordinary skill in the art to replace the flexible support frame in **Chang** with the connector 10 and the support 4 to achieve the benefit of collapsing for storage when not in use taught by **Chai**. Where the claimed differences involve substitution of interchangeable equivalents and the reason for the selection of one equivalent for another was not to solve an existent problem such substitution has been judicially determined to have been obvious. See In re Ruff, 118 USPQ 343 (CCPA 1958).

As to claim 24, the display apparatus of claim 23, a plurality of support members for supporting the display membrane, each support member having a first end connected to a pivot point about which the support member may rotate to expand and collapse the at least one individually-deformable sections of the display membrane. (Chai teaches a connector 10 (corresponding to a hub as claimed) wherein the at least one support member (4) is connected to the connector 10 at a first end and secured to positions along an outer periphery of a collapsible

shade (7) at a second end such that each support member is rotatable between a first position about the hub (10) where each support member (4) is substantially parallel to each other and the flexible display membrane is collapsed (see fig. 3) to a smaller visible area and a second position about the hub where the collapsible shade (7) forms at least a portion of a visible area having a greater visible area (see fig. 1).)

As to claim 25, in the alternate embodiment, Chang further teaches the display apparatus of claim 24, each of the expanded sections forming a fan-shaped display. (See fig. 19).

As to claim 28, Chai further teaches the display apparatus of claim 24, comprising a hub (10) for connecting the at least one individually deformable section of the collapsible shade (7); and at least one support member (4) for expanded and collapsing the at least one individually-deformable section (7) between the first and the second geometric configurations about the hub (10, see figures 1, 2 and 3.)

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chang** in view of **Comiskey** et al (US 6,473,072).

Chang teaches all of the claimed limitation of claim 9/8/6/1, except for said electronic device comprising a display wand for addressing the visual display elements of at least a portion of the display membrane. **Comiskey** et al teaches a display wand 162 which is scanning display sheet 160, see Figs. 15b, and 16a-16f. (Col. 2, lines 51-60, and col. 17, lines 1-63.) It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Chang to have the scanning in the electronic flexible display as taught by Comiskey. The motivation for doing so would provide the excellent contrast and brightness of the erasable

drawing, marking, and images being displayed on the electronic flexible display, while fabricating the lifetime issues. (col. 5, lines 14-18, and col. 13, lines 58-67 of Comiskey).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN M. NGUYEN whose telephone number is (571)272-7697. The examiner can normally be reached on Monday-Thursday from 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571)272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KEVIN M. NGUYEN/
Primary Examiner, Art Unit 2629